

**Amendments to the Claims:**

The listing of claims will replace all prior versions and listings of claims in the application.

**Listing of Claims:**

Claim 1 (currently amended): An apparatus for demineralizing bone, comprising:  
a container having an open top and a closed bottom, the container holding a demineralization solution comprising at least one acid capable of demineralizing bone and at least one piece of bone;

a cap covering said container, said cap containing a first port, and a second port for introducing the bone into said container;

a filter tube assembly disposed within said first port for transporting said demineralization solution into and out of said container, wherein said filter tube assembly comprises a filter mesh;

a pump for introducing and removing said demineralization solution from said container;  
and

a ~~first~~ connecting tube connecting said first port to said pump.

Claim 2 (canceled)

Claim 3 (original): The apparatus of claim 1, further comprising a port filter assembly disposed within said second port for maintaining a sterile environment in said apparatus.

Claim 4 (original): The apparatus of claim 3, wherein said port filter assembly provides a gas permeable seal.

Claim 5 (previously presented): The apparatus of claim 3, wherein said port filter assembly comprises a fritted filter disposed within an O-ring.

Claim 6 (previously presented): The apparatus of claim 1, wherein said filter tube

assembly is configured to exclude bone particles larger than 300  $\mu\text{m}$ .

Claim 7 (previously presented): The apparatus of claim 1, wherein said filter tube assembly is configured to exclude bone particles larger than 225  $\mu\text{m}$ .

Claim 8 (previously presented): The apparatus of claim 1, wherein said filter tube assembly is configured to exclude bone particles larger than 125  $\mu\text{m}$ .

Claim 9 (canceled)

Claim 10 (currently amended): The apparatus of claim 1, wherein ~~said material is~~ each of said container, said cap, said filter tube assembly, or said connecting tube comprises polytetrafluoroethylene, polyester, glass, or ceramic.

Claim 11 (original): The apparatus of claim 1, further comprising a second tube connecting said second port to a vessel coupled to said pump.

Claims 12 and 13 (canceled)

Claim 14 (previously presented): The apparatus of claim 1, wherein said pump is operated at a rate of about 0.5 to 2.0 liters per min.

Claim 15 (previously presented): The apparatus of claim 1, wherein said pump is operated at a rate of about 1.0 liter per min.

Claims 16-19 (canceled)

Claim 20 (currently amended): An apparatus for demineralizing bone, comprising: a container having an open top and a closed bottom, the container holding a demineralization solution comprising at least one acid capable of demineralizing bone and at

least one piece of bone;

a cap covering said container, said cap containing a first port, and a second port for introducing the bone into said container;

a filter tube assembly disposed within said first port for transporting said demineralization solution into and out of said container, wherein said filter tube assembly comprises a filter mesh, wherein the filter tube assembly is configured to exclude pieces of bone larger than 125  $\mu\text{m}$ , and

a pump for introducing and removing said demineralization solution from said container; and

a ~~first~~ connecting tube connecting said first port to said pump.

Claims 21 and 22 (canceled)

Claim 23 (previously presented): The apparatus of claim 1, wherein the at least one piece of bone comprises ground bone, particulate bone, bone chips, bone strips, bone cubes, bone fibers, or essentially intact bone.

Claim 24 (currently amended): The apparatus of claim 1, wherein the mesh size is from about 100  $\mu\text{m}$  to about 300  $\mu\text{m}$ .

Claim 25 (currently amended): The apparatus of claim 1, wherein the mesh size is from about 100  $\mu\text{m}$  to about 225  $\mu\text{m}$ .

Claim 26 (previously presented): The apparatus of claim 1, wherein the mesh size is about 125  $\mu\text{m}$ .

Claim 27 (previously presented): The apparatus of claim 1, further comprising a shaker coupled to the container having sufficient power to keep the at least one piece of bone suspended in the demineralization solution.

Claim 28 (previously presented): The apparatus of claim 1, further comprising a sonicator coupled to the container having sufficient power to keep the at least one piece of bone suspended in the demineralization solution.

Claim 29 (previously presented): The apparatus of claim 1, wherein the at least one acid is hydrochloric acid, phosphoric acid, citric acid, formic acid, acetic acid, propionic acid, gluconic acid, malic acid, tartaric acid, fumaric acid, or succinic acid.

Claim 30 (previously presented): The apparatus of claim 1, wherein the at least one acid is hydrochloric acid.

Claim 31 (previously presented): The apparatus of claim 1, wherein the at least one piece of bone has an average size of from about 120  $\mu\text{m}$  to about 860  $\mu\text{m}$ .

Claim 32 (previously presented): The apparatus of claim 1, wherein the filter mesh comprises polyester monofilament.

Claim 33 (previously presented): The apparatus of claim 1, wherein the container has a volume of from about 2 liters to about 8 liters.

Claim 34 (previously presented): The apparatus of claim 1, wherein the container has a volume of from about 3 liters to about 6 liters.

Claim 35 (previously presented): The apparatus of claim 1, further comprising a thermal wrap about the container.

Claim 36 (previously presented): The apparatus of claim 1, further comprising a mixing paddle disposed within the container.

Claim 37 (previously presented): The apparatus of claim 20, wherein the at least one

piece of bone comprises ground bone, particulate bone, bone chips, bone strips, bone cubes, bone fibers, or essentially intact bone.

Claim 38 (previously presented): The apparatus of claim 20, further comprising a shaker coupled to the container having sufficient power to keep the at least one piece of bone suspended in the demineralization solution.

Claim 39 (previously presented): The apparatus of claim 20, further comprising a sonicator coupled to the container having sufficient power to keep the at least one piece of bone suspended in the demineralization solution.

Claim 40 (previously presented): The apparatus of claim 20, wherein the at least one acid is hydrochloric acid, phosphoric acid, citric acid, formic acid, acetic acid, propionic acid, gluconic acid, malic acid, tartaric acid, fumaric acid, or succinic acid.

Claim 41 (previously presented): The apparatus of claim 20, wherein the at least one acid is hydrochloric acid.

Claim 42 (previously presented): The apparatus of claim 20, wherein the filter mesh comprises polyester monofilament.

Claim 43 (previously presented): The apparatus of claim 20, wherein the container has a volume of from about 2 liters to about 8 liters.

Claim 44 (previously presented): The apparatus of claim 20, wherein the container has a volume of from about 3 liters to about 6 liters.

Claim 45 (previously presented): The apparatus of claim 20, further comprising a thermal wrap about the container.

Claim 46 (previously presented): The apparatus of claim 20, further comprising a mixing paddle disposed within the container.

Claim 47 (previously presented): The apparatus of claim 5, wherein said O-ring is surrounded by a retaining ring.

Claim 48 (previously presented): The apparatus of claim 1, wherein the filter mesh is anchored at the bottom of the filter tube.

Claim 49 (previously presented): The apparatus of claim 1, wherein the filter mesh is anchored at the side of the filter tube.

Claim 50 (previously presented): The apparatus of claim 1, wherein said pump is operated at a rate of about 0.25 to 4.0 liters per min.